

## PATENT ABSTRACTS OF JAPAN

(11)Publication number : **11-053783**

(43)Date of publication of application : **26.02.1999**

---

(51)Int.Cl.

**G11B 15/02**  
**G11B 27/024**

---

(21)Application number : **09-205771**

(71)Applicant : **HITACHI LTD**  
**HITACHI VIDEO IND INF**  
**SYST INC**

(22)Date of filing : **31.07.1997**

(72)Inventor : **MATSUOKA YOSHIAKI**  
**KUSUMI ICHIRO**  
**OTA HISASHI**

---

**(54) TV SIGNAL RECORDING/REPRODUCING DEVICE**

(57)Abstract:

**PROBLEM TO BE SOLVED:** To automatically fast forward a commercial part at a reproducing time and to improve convenience by deciding a start point and an end point of a commercial based on simultaneous occurrence of events such as a soundless part in an audio signal, a luminance change in a video signal and a change in a sound multiplex mode etc. at a video recording time and recording them as absolute addresses of a tape.

**SOLUTION:** A soundless signal detection circuit 2 detects the soundless part in the audio signal from a TV tuner 1 to input it to a commercial decision circuit 4. A video luminance change detection circuit 3 detects the luminance change part of the video signal to input it to the commercial decision circuit 4. The commercial decision circuit 4 regards the time when the soundless part and the luminance change part are detected simultaneously as the event and when its interval is a multiple of 15 seconds, the circuit 4 decides the interval is the commercial. Then the absolute addresses from the wind-start of the magnetic tape are stored in a memory 6 by using a signal from an absolute address signal generator 5.

---

### CLAIMS

[Claim(s)]

[Claim 1] Distinguish a switch point of a scene by means to detect change of a luminance signal of a video signal, means to detect a non-sound of an audio signal, change detection of said video signal and non-voice detection of an audio signal, and a means of this timer that changes and measures time between points is formed. A television signal recording and reproducing device recording an actual address of a current position on a memory means from a cut water of magnetic tape when it is judged as commercials.

[Claim 2] The television signal recording and reproducing device according to claim 1

adding a means to detect change of the multiplex mode of an audio signal which received further as a means to judge it as the above-mentioned commercials.

[Claim 3]The television signal recording and reproducing device according to claim 1 detecting a head and an end part of a program from the length of commercials memorized by the above-mentioned memory means means.

[Claim 4]The television signal recording and reproducing device according to claim 1 having a means to use information on commercials memorized by the above-mentioned memory means meansand to control VTR by the side of record at the time of dubbing.

---

## DETAILED DESCRIPTION

---

[Detailed Description of the Invention]

[0001]

[Field of the Invention]This invention relates to the television signal recording and reproducing device which carries out fast forwarding reproduction of the commercial part of the magnetic tape in which the image and audio signal which were received by TV tuner were recorded.

[0002]

[Description of the Prior Art]As indicated to JP2-81344A to the conventional recording and reproducing device. Detect the timing of a change of the screen under recording or playbackand the time to the next screen change is measured by a timerThere is a thing provided with a means to judge whether they are a means to detect the change of the screen for judging whether they are commercialsa means to measure the time to a screen changeand commercials.

[0003]

[Problem(s) to be Solved by the Invention]The above-mentioned conventional technology detects the timing of a change of a screenand measures the time to the next screen change by a timerIn order to judge whether they are commercials in real timeit will judgeafter commercials are completed and there was the necessity of recording the recognition signal which should be rewound after record and should be reproduced to a control track.

[0004]

[Means for Solving the Problem]In order to attain the above-mentioned purposea television signal recording and reproducing device by this inventionWhen a memory means which memorizes the contents of record of a means and a tape which judge a television signal to be commercials was established and it was judged as commercialsit enabled it to record an actual address of a current position on a memory means from a cut water of magnetic tape.

[0005]

[Embodiment of the Invention]Hereafterthe example of this invention is described using drawing 1 - drawing 7. Drawing 1 is a block diagram of the principal part circuitry of the magnetic recorder and reproducing device of the example of this invention.

[0006]Usuallythat it is broadcast in time of the multiple for 15 seconds that commercials are is almost the case. For examplelike drawing 2after two commercials for 15 seconds continue after a programthe commercials for 30 seconds constitute the aggregate of one

commercials from one a total of three commercials (it abbreviates to a commercial group below). The non-audio part exists in the boundary line with a program with change of the brightness component of an image between each commercials.

[0007]1 which describes one example of this invention using drawing 1 -- TV tuner and 2 -- a voice non-signal detection circuit and 3 -- an image luminance change detector circuit and 4 -- a commercial judging circuit and 5 -- an actual address signal generator and 6 -- a memory means -- it is come out and constituted.

[0008]The audio signal outputted from the TV tuner 1 is inputted into the voice non-signal detection circuit 2 detects a soundless part and is inputted into the commercial judging circuit 4. The commercial judging circuit 4 which the video signal outputted from the TV tuner 1 on the other hand is inputted into the image luminance change detector circuit 3 and detects a luminance change part and is inputted into the commercial judging circuit 4. When a soundless part and a luminance change part are able to detect simultaneously it is judged as a boundary line portion (it abbreviates to an event below) between commercials or with a program the interval of this event is measured by an internal timer and that interval exists by the multiple for 15 seconds it operates so that it may be judged as commercials.

[0009]As shown in drawing 2 this commercial group's head A section and a commercial group's end part B section are automatically memorized from the cut water of magnetic tape to the memory means 6 as an actual address of a current position using the signal of the actual address signal generator 5.

[0010]Next operation of this example is explained using drawing 3. In order to distinguish commercials in drawing 1 when it detected a non-audio part with change of the brightness component of an image and these both have detected simultaneously were the example judged to be an event but further here The audio signal from the TV tuner 1 is inputted into the voice multiple-signal detector circuit 7 and change of the voice multiplex mode is inputted into the commercial judging circuit 4. The identification method using change of this voice multiplex mode of the starting point of commercials and an end point is performed as follows.

[0011]In the case of a monophonic recording to a stereo in the end point of commercial the starting point of commercials is a monophonic recording from a stereo.

[0012]In the case of two languages to a stereo in the end points of commercial the starting point of commercials is two languages from a stereo.

[0013]In the case of two languages to a monophonic recording in the end points of commercial the starting point of commercials is two languages from a monophonic recording.

[0014]When it becomes the above it can be regarded as a commercial group.

[0015]the case where drawing 4 (a) which shows drawing 4 one example has the commercials of the stereo for a total of 1 minute in 15-second + 15-second + 30 seconds in the program of two languages is assumed -- further -- end part of commercials the event of the B section -- it was not able to detect (it malfunctioned) -- it carries out. Usually although the commercials for 15 second + 15 seconds can be judged to be commercials in this case the commercials for 30 seconds of the second half will judge it as a program and will malfunction like drawing 4 (b).

[0016]Then change of the voice multiplex mode is used and by raising the priority of commercial distinction rather than an event as shown in drawing 4 (c) it operates good.

Thus also when erroneous recognition of the commercials is carried out operates good.

[0017] The example in the case of being another is described using drawing 5. in drawing 5 (a) the case where the commercials of the stereo for a total of 1 minute are in the program of a monophonic recording in 15-second + 15-second + 30 seconds is assumed -- further -- end part of commercials the inside of the program 15 seconds after from after the B section -- an event -- having detected (it malfunctioned) -- it carries out. Usually although the commercials for 15-second + 15-second + 30 seconds can be judged to be commercials in this case the program 15 seconds after from after the B section will also be judged to be commercials and it will malfunction like drawing 5 (b). Then change of the voice multiplex mode is used and by raising the priority of commercial distinction rather than an event as shown in drawing 5 (c) it operates good.

[0018] Thus also when erroneous recognition of the program is carried out to commercials it operates good.

[0019] Regeneration is explained to the next which is alike at the time of record and memorizes automatically a commercial group's head A section and a commercial group's end part B section from the cut water of magnetic tape to a memory means as an actual address of a current position also when change of the voice multiplex mode is used as mentioned above. When a tape reaches during playback at a commercial group's head A section it is made to operate as fundamental operation so that a commercial part may be played with a rapid traverse and it may return to ordinary reproduction in a commercial group's end part B section.

[0020] Furthermore one example of this invention is described using drawing 6. The point noted here that drawing 6 shows the program in the program of 1 hour and the composition of commercials There [ where the commercials for 2 minutes or more are contained until one program usually finishes and the following program starts ] which is the length of the commercials of the last of a program The interval of commercial group's head A section by which the memory was carried out at the time of record and a commercial group's end part B section finds a long portion and considers that the starting point C section of long commercials is an end part of a program and it is made to be reproduced to the C section at the time of reproduction.

[0021] Even when making it operate so that recording may be made to continue until the long commercial group it is considered as application at the time of request-to-print-out-files record that is the end of a program appeared and a baseball relay broadcast is extended a baseball relay broadcast can record to the last.

[0022] The program after a baseball relay broadcast extended by the baseball relay broadcast is operated so that recording may be made to continue until a long commercial group appears similarly and it is recordable to the last of a program.

[0023] Next as for VTR for reproduction of this invention and 9 VTR by the side of record and 11 are external-control input terminals a memory external output terminal and 10 8 for which one example of this invention is described using drawing 7.

[0024]. Connect the memory external output terminal 9 and the external-control input terminal 11 and enable it to transmit to VTR 10 by the side of record of the information on a memory means. While reproducing a commercial group's end part B from a commercial group's head A section by carrying out like this by making it operate as a command of a halt transmitted in VTR 11 for reproduction of this invention to VTR 10 by the side of record a commercial part is cut and dubbing is made.

[0025]

[Effect of the Invention]As explained aboveaccording to this invention claim 1the portion of commercials can be correctly fast forwarded by processing the starting point and the end point of commercials by a memory means as an actual address of a tape at the time of recording.

[0026]According to this invention claim 2the video section in accordance with setups can be more correctly judged to be commercials by judging the non-sound of change of the voice multiplex modethe luminance change of a video signaland an audio signal to be the starting point and the end point of commercialsand measuring the time from the starting point to an end point.

[0027]Since the head and end part of a program are detectable from the contents of the commercials memorized by the above-mentioned memory means means according to this invention claim 3only that of a program can also be seen and the program recording after the baseball relay broadcast which was extended can also be recorded to the last of a program.

[0028]Since according to this invention claim the information on the commercials memorized by the above-mentioned memory means means is used and VTR by the side of record can be controlled at the time of dubbingdubbing is made without recording commercials.

---

## DESCRIPTION OF DRAWINGS

---

[Brief Description of the Drawings]

[Drawing 1]It is a block diagram showing the composition of the magnetic recorder and reproducing device in this invention.

[Drawing 2]It is a description figure of a program and commercials in this invention.

[Drawing 3]It is a block diagram showing the composition of the magnetic recorder and reproducing device in this invention.

[Drawing 4]It is a description figure of a two-language program and stereo commercials in this invention.

[Drawing 5]It is a description figure of a monophonic program and stereo commercials in this invention.

[Drawing 6]It is a description figure of a 1-hour program and commercials in this invention.

[Drawing 7]It is a block diagram showing the composition at the time of dubbing of the magnetic recorder and reproducing device in this invention.

[Description of Notations]

1 -- TV tuner2 -- A voice non-signal detection circuit3 -- Image luminance change detector circuit4 [ -- A voice multiple-signal detector circuit8 / -- VTR for reproduction of this invention9 / -- A memory external output terminal10 / -- Record side VTR with an external-control input terminal 11 / -- External-control input terminal. ] -- A commercial judging circuit5 -- An actual address signal generator6 -- A memory means7

---